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Relation of presence and severity of metabolic syndrome with left atrial mechanics in patients, a deformation imaging study

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Objective: We aimed to investigate left atrium (LA) function by speckle tracking echocardiography in women with metabolic syndrome (MetSyn) admitted in chest pain unity with normal coronary angiography and to show a possible relationship between the severity of MetSyn and LA function

Methods: we included 180 MetSyn patients without diabetes and 50 controls. The patients were classified into three groups based on the number of MetSyn criteria. The peak LA strain at the end of the ventricular systole (LAs-strain) as well as the LA strain with LA contraction (LAa-strain) was obtained. Correlation analysis performed to assess the association of LA strain parameters with the severity of MetSyn and logistic regression analysis performed to assess the relationship of low LA strain with MetSynd

Results: Both LAs (33.5±6.7 vs. 24.3±11.2, p<0.01) and LAa (20.4±4.2 vs. 13.0±6.4, p<0.001) strain measurements were found to be significantly decreased in patients with MetSyn when compared to the control group. Moreover, both LAs and LAa were found to be significantly decreased with the increasing severity of the MetSyn. A multiple logistic regression analysis demonstrated that the presence of MetSyn [OR:0.34 (95% CI 0.04-0.89), p=0.032] and left ventricular ejection fraction [OR:1.23 (95% CI 1.02-1.77), p=0.03] were independent predictors of LAs strain.

Conclusion: MetSyn is associated with reduced LAs strain and LAa strain representing LA reservoir and pump function, respectively. Furthermore, LA mechanical function decreases even more with the increasing severity of the MetSyn.

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Assessment of left ventricular mass regression after implantation of a new generation of sutureless aortic bioprosthesis

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Background: The development of left ventricular (LV) concentric hypertrophy in the natural course of aortic stenosis is known as an independent prognostic factor of morbidity and mortality. The regression of LV mass after aortic valve replacement leads to an improvement of functional capacity and long-term outcome.

Objectives: To assess the degree of LV mass regression at one month after implantation of Edwards INTUITY.

Methods: Single arm, prospective study, from July 2012 to March 2014. Echocardiography was performed preoperatively, at discharge and at one-month follow up. Inclusion criteria: 1/ Severe symptomatic aortic stenosis 2/ tricuspid aortic valve.Endpoints:1/ In hospital mortality 2/ Evolution of LVEF, IVSd and LVPWd 3/ Evolution of LV mass index 4/ Evolution of mean gradient and iEOA 5/Incidence of periprosthetic regurgitation (PPR)

Results: 72 patients,age = 77.4±6.6,BMI = 31.2±4.2,Euroscore II= 3.4±3.4,LVEF = 63.4±10.2%,Aortic valve area = 0.5±0.2 cm²,Mean gradient = 56.7±19.3mmHg,Stroke volume = 49.9±11.6mL/m²,full sternotomy in all, associated CABG in 23 patients (33%), Cross clamping time = 48.7±22.3. 1/ In-hospital mortality: 1.4%. 2/ Evolution of LV parameters: LVEF(%) remains stable (61.6±8.9 versus 61.8±7.5, p=0.08), IVSd(mm) and LVPWd (mm) significantly decreased ((13.5±2 vs 14.9±1.7, p<0.001) and (12.5±1.5 vs 15.3±1.4, p< 0.001)). 3/ Evolution of LV mass index: LV mass index (mg/m²) significantly decreased at one month FU(124.4±26.7 vs 167±45.1, p<0.001) 4/ Evolution of mean gradient and iEOA: Mean gradient (mmHg): 12.3±7.10 vs 56.7±19.3, p< 0.001 iEOA(cm²/m²): 1±0.4 vs 0.5±0.2, p<0.001 5/ Incidence of PPR No moderate or severe paravalvular leakage was observed at discharge and at follow-up.

Conclusions: Edwards's Intuity bioprosthesis provides favorable preliminary results and is associated with significant regression of LV mass during the first month after aortic valve replacement.Midterm results should be evaluated.

0323

Prognosis value of main pulmonary artery dilatation in pulmonary hypertension

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Purpose: Pulmonary artery (PA) dilatation is often seen in patients with pulmonary hypertension (PH). The objective of our study was to identify factors associated with PA dilatation and to assess its prognosis significance in group 1 and 4 PH patients.

Methods: We performed a longitudinal cohort study, including consecutive patients with group 1 and 4 PH hospitalized in our center. All patients underwent clinical and biological evaluation, transthoracic echocardiography (TTE), CT scan and right heart catheterization and were followed every 3 months.

Results: 70 patients were recruited (70% group 1, 30% group 4). Mean age was 67±15 years and 70% were in functional class NYHA III or IV. PA dilatation (>30mm on CT) was observed in 87% of patients. Mean PA diameter was 37.2± 8.2mm and it was significantly larger in congenital heart disease patients: 46.2±8.6mm (p= 0.01). In multiple regression analysis, duration of symptoms (p= 0.01) and myocardial performance index (p= 0.02) were correlated with PA diameter. During a mean follow up of 59±19 months, 18 patients died (26%) (16 from heart failure and 2 from sudden death). On univariate analysis , while NYHA class (HR 2.37, 1.18-4.75), low 6-minute walk distance (HR 0.99 per 50m, 0.98-0.99), low cardiac index (HR 0.25 per 1L/min/m^2, 0.09-0.71), right atrial pressure (HR 1.12 per 1 mmHg, 1.02- 1.2), low TAPSE (HR 0.84 per 1mm, 0.76-0.93), right atrial area (HR 1.08 per 1cm^2,1.03-0.12) and high BNP were associated with mortality, PA diameter was not (HR: 0.97 per 1mm, 0.91-1.04). On multivariate analysis low TAPSE and high BNP level were independent predictors of all-cause mortality (respectively HR 0.72, 0.52-0.98 and 3.0, 1.01-8.90).

Conclusion: PA dilatation is frequent in PH and is associated with the duration of symptoms and poor myocardial performance index. However, in group 1 and 4 PH patients, PA dilatation is not predictor of mortality.

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Variability of right ventricular strain derived from speckle-tracking analysis using two different software solutions

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Introduction: Speckle tracking imaging is a recent technique that can be achieved using either vendor dependent or vendor-independent software. Right ventricular (RV) strain is increasingly used as a prognostic tool in both left and right ventricular diseases. Only little is known regarding the variability of vendor-dependent and – independent speckle-tracking imaging software in the assessment of RV free wall longitudinal strain (RLS). The aim of our study was to compare a vendor-dependent (Qlab 9.0, Philips Medical System, Andover, MA, USA) and – independent (Cardiac Performance Analysis, Tomtec Imaging Systems, Germany) software for RLS analysis.

Methods and Results: We prospectively enrolled 90 consecutive patients with pulmonary hypertension (mean age 55,8±19years) and 26 control patients (mean age 33,9±13years) who underwent a comprehensive echocardiogram including a RV focused 4-chamber view optimised for speckle-tracking analysis. DICOM data sets were stored and analysed by 2 different cardiologists using Qlab and TomTec, blindly to the context and